

## **REMARKS**

Applicants appreciate the Examiner's consideration provided the present application. Claims 48-80 are now present in the application. Claims 48, 77 and 79 are independent. Reconsideration of this application is respectfully requested.

### **Claim Rejections Under 35 U.S.C. § 102 & 103**

Claims 48-55, 59, 60, 62-64, 70, 74 and 77-79 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Bailey, U.S. Patent No. 6,028,315. Claims 56-58, 65, 67, 72 and 80 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Spero, U.S. Patent No. 3,911,318. Claim 61 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Son, U.S. Patent No. 4,073,770. Claims 68, 71 and 75 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Wang, U.S. Patent No. 6,135,838. Claim 69 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Spero, and further in view of Ressler, U.S. Patent No. 5,626,768. Claim 73 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Macklin, U.S. Patent No. 4,504,955. Claim 76 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Shie, U.S. Patent No. 6,166,389. These rejections are respectfully traversed.

Independent claim 48 recites a combination of elements including "a waveguide for guiding microwave energy originating from said microwave energy source to the ultraviolet lamp, said waveguide being UV transparent and wholly surrounding the ultraviolet lamp".

Independent claim 77 recites a combination of elements including “a waveguide for guiding microwave energy originating from a microwave energy source to the ultraviolet lamp, said waveguide being UV transparent and wholly surrounding the ultraviolet lamp”.

Independent claim 79 recites a combination of steps including “guiding microwave energy from a microwave energy source to an ultraviolet lamp to produce ultraviolet radiation” and “wholly surrounding the ultraviolet lamp with a UV transparent waveguide”.

Applicants respectfully submit that the above combinations of elements and steps as set forth in independent claims 48, 77 and 79 are not disclosed nor suggested by the references relied on by the Examiner.

Bailey discloses a chamber sterilisation apparatus, in which microwaves are simply released into a chamber 107 having reflective walls. In Bailey’s chamber sterilisation apparatus, microwaves are reflected to a target area (in this case, the hollow column 110 and sealed unit 111) by the reflective walls of the chamber itself, which is similar to an ordinary domestic microwave oven.

Unlike Bailey, the apparatus of the claimed invention requires a UV transparent waveguide to specifically guide the microwave energy originating from a microwave energy source to an ultraviolet lamp. Although the Examiner alleged that Bailey in FIG. 5 shows an unlabeled UV lamp within the sealed unit 111 and concluded that the sealed unit 111 is not a UV lamp but functions as a waveguide, Applicants respectfully disagree. In particular, Bailey in col. 5, lines 54-58 states:

“Situating inside the column 110 is a sealed unit 111, such as a quartz tube, which sealed unit contains a gas or plasma capable of emitting ultraviolet light with a frequency suitable for sterilisation, for example mercury vapour.” (Emphasis added)

In other words, Bailey’s sealed unit 111 is simply an ultraviolet lamp (i.e. a sealed unit containing gas or plasma, which, when excited, emits ultraviolet light), but not a waveguide as claimed to guide the microwave energy originating from a microwave energy source to an ultraviolet lamp. It is clear that the sealed unit 111 is the UV lamp itself and there is no other UV lamp within the sealed unit 111. In addition, FIG. 5 also clearly shows that there is no any other UV lamp within the sealed unit 111.

In addition, Bailey in col. 6, lines 59-61 states:

“... the cavity is irradiated with microwaves which pass through the container and the wall of the hollow column into the sealed unit 111, the microwaves thereby exciting the gas or plasma, causing it to emit ultraviolet light ...”. (Emphasis added)

In other words, Bailey merely discloses that the microwaves pass through the wall of hollow column into the sealed unit 111 to excite the gas in the sealed unit 111. Bailey fails to teach that the sealed unit 111 or the hollow column 110 provides any guiding function for the microwaves. In fact, the sealed unit 111 simply let the microwaves pass through without providing guiding function.

Therefore, Bailey’s plasma or gas containing sealed unit 111 is simply nothing but a UV lamp and does not function in any way to guide the microwaves as suggested by the Examiner.

Accordingly, Bailey fails to teach any transparent waveguide for guiding microwave energy originating from said microwave energy source to the ultraviolet lamp as recited in claims 48, 77 and 79.

With regard to the Examiner's reliance on Spero, Son, Wang, Ressler, Macklin and Shie, these references have only been relied on for their teachings related to the subject matter of dependent claims. These references also fail to disclose the above combinations of elements and steps as set forth in independent claims 48, 77 and 79. Accordingly, these references fail to cure the deficiencies of Bailey.

Accordingly, none of the references utilized by the Examiner individually or in combination teach or suggest the limitations of independent claims 48, 77 and 79 or their dependent claims. Therefore, Applicants respectfully submit that independent claims 48, 77 and 79 and their dependent claims clearly define over the teachings of the references relied on by the Examiner.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. §§102 and 103 are respectfully requested.

#### **Claim Rejections Under Obviousness-type Double Patenting**

Claims 48-49 and 77-79 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4, 27, 30 and 31 of U.S. Patent No. 6,610,990. This rejection is respectfully traversed.

Without conceding the propriety of the Examiner's rejection, but merely to timely advance the prosecution of the present application, Applicants have submitted a timely filed

terminal disclaimer concurrently herewith. Accordingly, the Examiner's rejection based on '990 patent should be withdrawn. In view of the above remarks, Applicants respectfully request reconsideration and withdrawal of the rejections under the judicially created doctrine of obviousness-type double patenting.

### **CONCLUSION**

It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Joe McKinney Muncy, Registration No. 32,334 at (703) 205-8000 in the Washington, D.C. area to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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Attachment: Terminal Disclaimer